

PURCHASE DESCRIPTION

BRIDGE, RESISTANCE

SCAT: 4122

Solicitation No: SPRMM1-16-R-YC01

- 1.0 **GENERAL** This procurement requires a resistance bridge for measuring three and four-wire Resistance Temperature Devices (RTD).
- 2.0 **CLASSIFICATION** This equipment shall meet the requirements of MIL-PRF- 28800F, class 3 for Navy and Marine Corps applications.
- 3.0 **OPERATIONAL REQUIREMENTS** The specifications provided below are the minimum requirements and accuracies that will meet the Government's need. The Resistance Bridge shall at least meet these requirements and accuracies and may provide better performance.
- 3.1 Measurement requirements The equipment shall be an ohmmeter capable of measuring resistance of three- and four-wire RTDs in accordance with the following minimum performance specifications.

3.1.1 Performance Specifications:

Scale	Accuracy	Resolution	Maximum Current (Nominal)
199.999 mΩ	±0.05% of rdg ±15 dig	1μΩ	50 mA
1.99999 Ω	±0.05% of rdg ±2 dig	10μΩ	50 mA
19.9999 Ω	±0.05% of rdg ±1 dig	100μΩ	50 mA
199.999 Ω	±0.05% of rdg ±1 dig	1mΩ	0.5 mA
1999.99 Ω	±0.05% of rdg ±1 dig	10mΩ	0.5 mA

- 3.2 Display Characteristics The equipment shall be provided with a 5½-digit display with auto range and manual over-ride features.
- 3.2.1 Connectors The equipment shall have three-way binding posts.
- 4.0 **GENERAL REQUIREMENTS**
- 4.1 Temperature
- 4.1.1 Operating temperature: 0° C to +50° C
- 4.1.2 Non-operating temperature: -40° C to +71°C

4.2 Power source

4.2.1 Internal DC Power: MIL-PRF-28800F DC internal power source requirements are invoked. Internal batteries and a charger are required. Minimum operating time shall be at least 24 hours following a maximum recharge time of 8 hours. A charger that accepts 110/220 $\pm 10\%$ Volt @ 50/60 Hz single phase shall be provided for each unit. A battery life indicator shall be incorporated into the display.

4.2.2 Maximum power consumption: 10W

4.3 Battery Restrictions Per MIL-PRF-28800F, Lithium and Mercury batteries are prohibited without prior authorization. A request for approval for the use of Lithium and Mercury batteries shall be submitted with production lot delivery, after contract award. Approval shall apply only to the specific model proposed.

Exceptions: Per Naval Ordnance Safety and Security Activity (NOSSA), the use of Lithium primary (non-rechargeable) coin cell batteries meeting the following criteria is authorized for Naval personnel and on Naval activities, surface ships, submarines, and aircrafts:

- Commercially available coin cell batteries, unmodified, and used in the device recommended by the application manufacturer.
- Coin cell batteries shall only be used in single cell configurations.
- Coin cell batteries shall not be rated for more than 3 volts (maximum nominal output voltage).
- Coin cell batteries shall not be rated for more than 1 Ampere-Hour nameplate capacity.

The coin cell manufacturer and model identification/part number shall be provided at the time of submission of proposals.

4.4 Wireless Connectivity Any capability of the equipment to communicate wirelessly, including but not limited to Wi-Fi and Bluetooth, shall be disabled.

4.5 Calibration interval The calibration interval shall be 24 months minimum. At the end of this interval, a minimum of 85% of the equipment shall remain in tolerance.

4.6 Calibration Procedure The procedure, software, and special interfaces/adapters that are needed for the equipment calibration shall be provided.

4.7 Dimension Not to exceed 15.5 cm (6.0 in) H x 40 cm (14in) W x 29 cm (11") D.

4.8 Weight Not to exceed 20 kg (44 lbs).

- 4.9 Technical Manual The maintenance philosophy for this unit shall be level 3 (per MIL-PRF-28800F) and require maintenance to the component level of the unit. The technical manual shall conform to the level 3 maintenance philosophy. This level would be used for most equipment where maintenance and repair is an expected phase of equipment lifecycle. Board level maintenance and troubleshooting information is required. A Use and Installation manual (Operator's Manual) shall be provided separately. Maintenance and Servicing manual shall be provided to two levels of maintenance, unit operational verification level and the module level.

Information required for performance verification shall include:

- Instructions to verify equipment performance,
- List the equipment required for verification tests,
- Step-by-step instructions for test connections,
- Acceptable result criteria,
- Calibration information,
- Self-test routines.

Maintenance information shall include:

- Parts lists to the component level,
- Schematics and component layout drawings,
- Block and schematic diagrams.
- List of required test equipment and connection diagrams, and sequential instructions for disassembly, repair, replacement, and reassembly shall be provided.
- Board level maintenance and troubleshooting information,
- Component level maintenance and troubleshooting information,
- Step-by-step instructions for troubleshooting and fault isolation, Expected signal levels,
- Test data sheets will be included, and as required,
- The instructions will define localizing a defective circuit card and the defective component(s).

Parts lists shall include:

- Parts lists shall be shown on illustrations or a separate listing that includes an index or reference to other illustrations.
- Part number, cage code, and generic description.

The technical manual shall be provided in both printed and electronic formats. The printed format shall be otherwise normally provided. The electronic format shall be in Portable Document Format (PDF) - ISO 32000-1:2008. Two separate CD/DVDs are required, one shall contain the Use and Installation manual and one shall contain the Maintenance and Service manual.

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shall be printed in the first two pages of each technical manual and on the surface of the CD/DVD supplied.

- 4.10 Training material Training materials that demonstrate the features, detailed operations and procedures with step-by-step instructions for using the equipment shall be provided. The training material shall be delivered in technical manual or interactive CD-ROM formats.
- 4.11 Additional Requirements
- 4.11.1 Human Readable Identification Labeling:
- 4.11.1.1 Equipment: Per MIL-PRF-28800F, a human readable label shall be provided for all production lot units conforming with MIL-STD-130N and permanently affixed on the equipment in an easily readable location. Required fields on the label are; CAGE, part number, and serial number. Size of the label shall conform to the size of the equipment.
- 4.11.1.2 Case: Per MIL-PRF-28800F, a human readable metal plate shall be provided for all production lot units conforming with MIL-STD-130N and permanently affixed to the front of the transit case. Required fields on the label are; CAGE, part number, and serial number. Size of the label shall conform to the size of the case. Pressure sensitive adhesive transfer tape is required to hold the plate to the hard transit case such as 3M™ 9472LE. Soft transit cases also require labeling with permanent placement such as a metal plate affixed with rivets, screws or adhesives.
- 4.11.2 Shipping container: For production lot units the package or carton containing the equipment for shipment shall be marked per MIL-STD-129P.
- 4.11.3 Other Additional Requirements: Shall be specified in the CDRL of the solicitation.